IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Group Art Unit 2811

| | | |
|---|---|---|
| In re application of | : | October 6, 2008 |
| Takatoshi Tsujimura et al. | : | Examiner: Andrew Owens Arena |
| Serial No. : 10/528,756 | : | |
| Filed: December 15, 2005 | : | IBM Corporation<br>Dept. 18G/Bldg, 300-482 |
| Title: ORGANIC LIGHT EMITTING DIODE DEVICE AND METHOD FOR MANUFACTURING THE ORGANIC LIGHT EMITTING DIODE DEVICE | : | 2070 Route 52<br>Hopewell Junction, NY<br>12533-6531 |

## APPEAL BRIEF

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Sir:

This is an appeal from the May 2, 2008 Final Rejection of claims 1-3, 5-7, 9 and 10. A correct copy of the claims is attached in Appendix A.

## Real Party in Interest

The real party in interest is International Business Machines Corporation per an assignment recorded in the US Patent and Trademark Office at Reel/Frame: 017431 / 0755 on January 4, 2006.

## Related Appeals and Interferences

None.

## Status of Claims

Claims 1-3, 5-7, 9 and 10 are pending. Claims 4, 8, 11 and 12 have been canceled. There are no other claims in the application. Claims 1-3, 5-7, 9 and 10 are the appealed claims.

## Status of Amendments

A request for reconsideration was submitted after final rejection. No amendment after final rejection has been submitted.

## Summary of the Claimed Subject Matter

The invention centers on a novel electroluminescent device and method for creating it. The device (of appealed claim 1) is characterized by presence of trench walls 22 on the function layer 16 (see specification page 3, lines 1-11, especially lines 9-11) and by dopant concentration in the function layer which is less in the region below (18c in Figure 3(c)) the trench walls (see specification page 3, at the 5th line from the bottom of the page and on page 22, the paragraph beginning, line 11). The method (of appealed claim 5) is characterized by the formation of trenches on a function layer (see page 21, paragraph starting 9 lines from the bottom as well as figures 3(a) - 3(c)) and by doping the function layer by providing a dopant solution along the trenches (see: page 3, lines 9-14; page 15, last paragraph; on page 22, the paragraph beginning, line 11). The result is a device that can have a high definition color pattern and economical method for producing it.

## Grounds of Rejection to be Reviewed on Appeal

1. Claims 1-3, 5-7 and 10 are rejected under 35 USC 102(e) as being anticipated by US Pat. 7,098,060 (Yu).

2. Claim 9 is rejected under 35 USC 103(a) as being obvious in view of US Pat. 7,098,060 (Yu).

## Argument

**1. Claims 1-3, 5-7 and 10 are rejected under 35 USC 102(e) as being anticipated by US Pat. 7,098,060 (Yu).**

Yu et al. discloses the formation of a substrate (10) with walls (30) in contact with the substrate. Yu et al. does not disclose or suggest the presence or formation of a trench wall structure **on** the function layer, nor the regions of function layer material below the wall which have reduced dopant concentration compared to the other portions of the function layer.

Regarding the present device claims, appellants submit that the discussion in the official action of whether a photoresist wall can be removed or not is irrelevant. The present device claims require that there be a trench wall structure on the located on the organic electroluminescent function layer. Appellants are not claiming a device where such feature is not present. This

feature of a trench wall structure on the on the organic electroluminescent function layer which is required by the present product claims is simply not present in the products disclosed by Yu et al. nor suggested by the teaching of Yu et al. Further, such feature of the appealed claims is never present in the manufacturing process of Yu et al. which requires formation of the walls prior to placement of any function layer material.

Similarly, regarding appellants' claimed method of manufacture, the removability of the formed trench wall structure is irrelevant. The appealed method claims require the formation of such a trench wall structure **on** the organic electroluminescent function layer. Yu et al. requires formation of the walls prior to placement of any function layer material and thus, there is never a trench wall structure formed on any portion of the function layer of Yu et al. Appellants note that once the walls of Yu et al. are formed, Yu et al. does not perform any additional wall construction on the subsequently deposited function layer. Even the pattern of Yu et al. figure 1C discussed at col. 5, lines 11-26 uses ink jet printing to provide the function layers in between the walls.

**2. Claim 9 is rejected under 35 USC 103(a) as being obvious in view of US Pat. 7,098,060 (Yu).**

Appellants arguments with respect to claims 1-3, 5-7 and 10 apply equally to claim 9. Appellants wish claim 9 to stand or fall with claims 1-3, 5-7 and 10.

## Conclusion

Based on the above arguments, appellants submit that the present claims are patentable over the prior art of record and that the rejections under 35 USC 102(b) and 35 USC 103(a) should be reversed.

Respectfully submitted,

Takatoshi Tsujimura et al.

By ___ /Steven Capella/ _____
Steven Capella, Attorney
Reg. No. 33,086
Telephone: 845-894-3669

## Appendix A

## Claims on Appeal

1. An organic light emitting diode device, comprising:

a substrate;

a first electrode formed on the substrate;

an organic electroluminescent function layer formed on the substrate;

a trench wall pattern formed on the function layer; and

a second electrode layer formed on the function layer and the trench wall pattern

wherein a doping concentration in the function layer under a wall forming the trench pattern is lower than in other portions of the function layer.

2. The organic electroluminescent device according to claim 1,

wherein the function layer contains any one of polymer and oligomer, each having an amine derivative structure.

3. The organic electroluminescent device according to claim 1,

wherein different types of dopant are contained in areas of the function layer, the areas being adjacent to each other while being spaced by a wall of the trench pattern.

5. A method for manufacturing an organic light emitting diode device, the method comprising the steps of:

forming a first electrode on a substrate;

forming an organic electroluminescent function layer on the electrode;

forming a trench pattern on said organic electroluminescent function layer;

performing doping for the function layer by supplying a dopant solution along the trench pattern; and

forming a second electrode layer on the function layer and the trench pattern.

6. The manufacturing method according to claim 5,

wherein the step of forming a trench pattern includes the steps of:

forming a photoresist layer on the function layer; and patterning the photoresist layer to form the trench pattern.

7. The manufacturing method according to claim 5, further comprising the step of introducing, along the trench pattern, at least a second function layer having a composition different from a composition of the function layer.

9. The manufacturing method according to claim 5,

wherein the step of performing doping for the function layer by supplying a dopant solution includes the steps of:

supplying the dopant solution along the trench pattern; and dispersing the dopant into the function layer by heating the function layer.

10. The manufacturing method according to claim 5,

wherein the step of performing doping includes the step of supplying different types of dopant into areas of the function layer, the areas being spaced by a wall of the trench pattern.

********

Appendix B

**Evidence Appendix**

None.

[End of Appendix B]

Appendix C

**Related Proceedings Appendix**

None.

[End of Appendix C]